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DEPARTMENT OF CONSUMER & INDUSTRY SERVICES
DIRECTOR'S OFFICE
GENERAL INDUSTRY SAFETY STANDARDS

Filed with the Secretary of State on December 13, 1974 (as amended October 28, 1976) (as amended May 17, 1983) **(as amended January 11, 1988)**

These rules take effect 15 days after filing with the Secretary of State

(By authority conferred on the director of the department of consumer and industry services by sections 16 and 21 of Act No. 154 of the Public Acts of 1974, as amended, and Exectutive Reorganization Order No. 1996-2, being §§408.1016, 408.1021, and 445.2001 of the Michigan Compiled Laws)

R 408.15803, R 408.15831, and R 408.15832 of the Michigan Administrative Code, appearing on pages 3883, 3885, and 3886 of the 1979 Michigan Administrative Code, and pages 379 to 381 of the 1983 Annual Supplement to the Code, are amended, and R 408.15830 is added, to read as follows:

Bureau of Safety and Regulation, Standard Division Web-Site: www:cis.state.mi.us./bsr/divisions/stds

PART 58. VEHICLE MOUNTED ELEVATING AND ROTATING WORK PLATFORMS

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GENERAL PROVISIONS

R 408.15801. Scope.

Rule 5801. This part provides for the safe operation and maintenance by the employer and the safe use by the employee of vehicle mounted elevating and rotating work platforms in, around and about a place of employment. Fire fighting equipment and powered industrial trucks are not included in these rules.

R 408.15803. Definitions A to I.

Rule 5803. (1) "Aerial device" means any vehicle-mounted device, telescoping or articulating or both, which is used to position an employee.

(2) "Aerial ladder" means an aerial device consisting of a single-or multiple-section extensible ladder.

(3) "Articulating boom platform" means an aerial device with 2 or more hinged boom sections.

(4) "Extensible boom platform" means an aerial device, except ladders, with a telescopic or extensible boom. A telescopic derrick with a personnel platform attachment shall be considered to be an extensible boom platform when used with a personnel platform.

(5) "Instability" means a condition of a mobile unit in which the sum of the moments tending to overturn the unit is equal to or exceeds the sum of the moments tending to resist overturning.

(6) "Insulated aerial device" means an aerial device designed for work on or near energized lines and apparatus.

R 408.15804. Definitions M to Q.

Rule 5804. (1) "Mobile unit" means a combination of an aerial device, vehicle and related equipment.

(2) "Override" means to transfer or to take away platform control functions by another station.

(3) "Platform" means a personnel carrying device, such as a basket, bucket, stand or equivalent which is a component of an aerial device.

(4) "Qualified line clearance tree trimmer" means an employee trained to work in proximity of energized power transmission and distribution lines. An employee in a training program is included in this definition.

(5) "Qualified lineman" means an employee trained and authorized to work on or near energized lines. An employee in a training program is included in this definition.

(6) "Qualified telecommunications employee" means an employee trained to work on communication lines in the proximity of energized power transmission and distribution lines.

R 408.15805. Definitions S to Y.

Rule 5805. (1) "Safety factor" means the ratio of the breaking strength of a piece of material or object to maximum designed load or stress applied when in use.

(2) "Vehicle" means any carrier that is not manually propelled.

(3) "Vehicle mounted elevating and rotating work platform" means an aerial device.

(4) "Vertical tower" means an aerial device designed to elevate a platform in a substantially vertical axis.

(5) "Yield point" means the point where material begins to take a permanent deformation.

R 408.15811. Employer responsibility.

Rule 5811. An employer shall:

(a) Provide training to an employee in the operations, hazards and safeguards concerning an aerial device

and rules 5825 to 5832 of this part before authorizing the employee to operate or ride on it.

(b) Maintain an aerial device in a condition free of known defects and hazards which could cause an injury.

R 408.15812. Employee responsibility.

Rule 5812. An employee shall:

(a) Operate an aerial device only after being trained and authorized by the employer.

(b) Report known defects and hazards concerning an aerial device to the supervisor.

CONSTRUCTION, TESTING, AND USE PROVISIONS

R 408.15821. Construction, modification, and remounting.

Rule 5821. (1) An aerial device purchased, modified, or remounted after December 28, 1974, shall be as prescribed in ANSI A92.2-1969, standard for Vehicle-Mounted Elevating and Rotating Work Platforms, which is incorporated herein by reference and is available for inspection at the Lansing office of the department of consumer and industry services. This standard may be purchased at a cost of $3.75 each from the American National Standards Institue, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Consumer and Industry Services, State Secondary Complex, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909. An in-plant industrial type aerial lift designed for use on level surfaces is exempted from paragraph 3.1.6 of ANSI A92.2-1969 for requirements of stability on slopes.

(2) A permanent label or tag shall be affixed to an aerial device purchased, modified or remounted after March 28, 1975, certifying compliance with subrule (1).

(3) An employer modifying the basic design of an aerial device shall secure approval of the modification in writing from the manufacturer of the aerial device, a firm offering an equivalent service, or a qualified engineer knowledgeable in the aerial device operations. The results of the modification shall be at least as safe as the original design.

(4) An aerial device shall bear a permanent plate stating the designed rating capacity.

(5) An aerial device shall be mounted on a vehicle capable of sustaining, or reinforced to sustain, the imposed load. The vehicle shall be a stable support for the aerial device.

(6) The lifting and outrigger system of an aerial device shall be equipped with a means, such as but not limited to, a pilot operated check valve to ensure that the system will not permit the work platform to drop in a free fall in event of a power or hydraulic line failure.

(7) An aerial device acquired before December 31, 1976, which does not meet the requirements of subrule (1), shall not be used unless it has been inspected and modified as required to conform to the essential stability, structural, electrical insulation, and operational requirements of ANSI A92.2-1969.

(8) In addition to the welding requirements prescribed in ANSI A92.2-1969, an aerial device shall conform to AWS D2.0-69, Specifications for Welding Highway and Railway Bridges standard, which was adopted by reference by Act No. 154 of the Public Acts of 1974, as amended, being §408.1001 et seq. of the Michigan Compiled Laws, and is available for inspection at the Lansing office of the department of consumer and industry services. This standard may be purchased at a cost of $5.00 from the American Welding Society, 2501 N.W. 7th Street, Miami, Florida 33125, or the Michigan Department of Consumer and Industry Services, State Secondary Complex, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.

R 408.15823. Electrical ratings.

Rule 5823. (1) The rating plate required in rule 5821 shall include a statement as to whether the aerial device is insulated or is noninsulated and, if insulated, the rated line voltage for which the aerial device was designed and tested.

(2) The insulating portion of an aerial device shall not be altered in any manner that might reduce its insulating value.

R 408.15824. Safety factors and yield points.

Rule 5824. (1) The design of the basic structural elements of the aerial device including the platform and its component parts shall have a yield point of not less than 3 times the rated load. Structural materials not having a clearly defined yield or break point shall have a designed safety factor of not less than 5.

(2) The designed safety factor of not less than 4 shall apply to those hydraulic and pneumatic components which would, on failure, permit a free fall, free rotation of the boom or loss of stability.

(3) Noncritical components shall have a bursting safety factor of not less than 2.

R 408.15825. Controls.

Rule 5825. (1) The controls for the operation of an aerial device shall be permanently labeled as to their functions.

(2) Controls for an aerial device shall be designed or guarded to prevent inadvertent actuation.

(3) Articulating, extensible boom platforms, or both, primarily designed as personnel carriers, shall be equipped with both upper and lower controls.

(4) Upper controls shall be located within reach of the operator.

(5) Lower controls shall be capable of overriding the upper controls. Except in case of an emergency, the lower controls shall not be operated unless permission has been obtained by the employee in the basket or on the work platform.

R 408.15830. New or modified aerial devices; stability requirements.

Rule 5830. (1) Each new or modified aerial device shall be inspected and tested before initial use to assure compliance with all of the following requirements.

(a) Each aerial device, when mounted on a vehicle which meets the manufacturer's minimum vehicle specifications and when used in a specific configuration, shall comprise a mobile unit capable of sustaining a static load $1^1/_2$ times its rated load capacity in every position in which the load can be placed within the definition of the specific configuration when the vehicle is on a firm and level surface. If having the outriggers extend to a firm footing is part of the definition of the configuration, they shall be extended to provide leveling for the purpose of determining whether the mobile unit meets the stability requirements.

(b) Each aerial device, when mounted on a vehicle which meets the manufacturer's minimum vehicle specifications and when used in a specific configuration, shall comprise a mobile unit capable of sustaining a static load $1^1/_3$ times its rated load capacity in every position in which the load can be placed within the definition of the specific configuration when the vehicle is on a slope of 5 degrees downward in the direction most likely to cause overturning. If having the outriggers extended to a firm footing is part of the defintion of the configuration, they shall be extended to provide leveling for the purpose of determining whether the mobile unit meets the stability requirements. If other facilities, such as a means of turntable leveling, are provided to minimize the effect of the sloping surface, then those facilities shall be

utilized for the purpose of determining whether the mobile unit meets the stability requirements. Vertical towers designed specifically for operation only on a level surface shall be excluded from this requirement.

(c) None of the stability tests described in subdivision (a) or (b) of this subrule shall produce instability of the mobile unit, as defined in R 408.15803(5), or cause permanent deformation of any component. The lifting of a tire or outrigger on the opposite side of the load does not necessarily indicate a condition of instability.

(2) Verification by the manufacturer or an equivalent entity that the stability of an aerial device meets the requirements of subrule (1) of this rule may be used to demonstrate compliance with this rule.

R 408.15831. Inspection and tests.

Rule 5831. (1) An aerial device shall be inspected and tested at least annually for permanent deformation and cracks by using $1^1/_2$ times the rated load and for defects by visual inspection during and following the load test.

(2) An electrical test of insulated aerial devices shall be made, annually, as prescribed in paragraph A1.6 periodic inspections and tests, of ANSI standardA92.2-1969, entitled "Vehicle-Mounted Elevating and Rotating Work Platforms," which is incorporated herein by reference and may be inspected at the Lansing office of the department of consumer and industry services. This standard may be purchased at a cost of $3.75 from the American National Standards Institue, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909. An equivalent DC voltage test may be used in place of the prescribed AC voltage.

(3) Field inspection and tests shall be performed only by an authorized and trained employee or outside service.

(4) Lift controls shall be tested each day before use to determine that the controls are in safe working condition. An aerial device with defective controls shall not be used until repaired.

R 408.15832. Use.

Rule 5832. (1) Any overhead line shall be considered energized until the owner, owner representative, or utility indicates otherwise and the line has been visibly grounded, and the owner, owner representative, or utility shall be notified and provided with all pertinent information of the job before the commencement of operations near electrical lines.

(2) Except as prescribed in subrules (3) and (4) of this rule, or where insulating barriers not a part of or an attachment to the aerial device have been erected to prevent physical contact with the lines, an aerial device shall maintain the distances from energized distribution and transmission power lines and equipment prescribed in table 1.

(3) A qualified lineman or a qualified line clearance tree trimmer performing work on or near an exposed power transmission or distribution line from an aerial lift shall maintain distances prescribed in table 2, unless the employee is insulated or guarded from the energized part by gloves or gloves and sleeves, as provided for and prescribed in general industry safety standard, Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code, or insulated, isolated, or guarded from any other conductive part or the energized part is insulated from the employee.

(4) A qualified telecommunications employee shall maintain the distances prescribed in table 3 when working from an aerial lift, unless the employee is insulated, isolated, or guarded from any other conductive part or the energized part is insulated from the employee.

(5) The insulated bucket, gloves, and sleeves used to comply with subrules (3) and (4) of this rule, shall be rated at more than the voltage to be worked on or that with which they might come into contact.

(6) An in-plant, industrial-type aerial lift designed to be used on level surfaces shall not be used on slopes, unless the aerial lift is adjusted to a firm, level plane.

(7) A safety belt or harness shall be used with a lanyard attached to the boom or basket when working from an aerial lift. The safety belt, harness, and lanyard shall be provided by the employer as prescribed in general industry safety standard, Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code. An in-plant, industrial-type aerial device used on a level surface and equipped with a platform with approved railings is exempt from this subrule.

(8) A boom platform shall be provided with a rail or other structure around its upper periphery that shall be not less than 38 inches above the floor of the platform and with a toeboard not less than 4 inches high. A basket of a cherry picker shall be considered to meet this requirement. A platform may have the guardrail removed from the working side if a safety belt and lanyard is worn by the employee on the platform.

(9) The designed rated capacity for a given altitude shall not be exceeded.

(10) A proximity warning device may be used, but not in place of meeting the requirements of this rule.

(11) Belting off to an adjacent pole, structure, or equipment while working from an aerial device shall not be permitted.

(12) An employee shall stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket, except that an employee may sit in the basket if it is equipped with a specifically designed seat. A plank, ladder, or other device shall not be used from a basket.

(13) Climbers shall not be worn while working from an aerial device unless gaff guards are provided.

(14) Tables 1, 2, and 3 read as follows:

Table 1
Minimum Clearance Distances for Equipment

Voltage	Clearance With Boom Raised	Clearance Boom Lowered and No Load in Transit
To 50 kV	10 feet	4 feet
Over 50 kV	10 feet + .4 inch per each 1 kV over 50 kV	10 feet
50 to 345 kV		10 feet
346 to 750 kV		15 feet

Table 2
Minimum Working Distances for Qualified Line Clearance Tree Trimmers and Qualified Linemen

Voltage Range Phase to Phase (KV)	Minimum Working Distance
2.1 to 15.0	2′0″
15.1 to 35.0	2′4″
35.1 to 46.0	2′6″
46.1 to 72.5	3′0″
72.6 to 121.0	3′4″
138.0 to 145.0	3′6″
161.0 to 169.0	3′8″
230.0 to 242.0	5′0″
345.0 to 362.0	*7′0″
550.0 to 552.0	*11′0″
700.0 to 765.0	*15′0″

*Note: For 345 — 362 kV., 500 — 552 kV., and 700 — 765 kV., the minimum working distance and the minimum clear hot stick distance may be reduced that such distances are not less than the shortest distance between the energized part and a grounded surface.

Table 3
Minimum Approach Distances for
Qualified Telecommunications Employees

Voltage Range (Nominal Phase to Phase)	Minimum Approach Distances
300 V and less	12″
Over 300 V, not over 750 V	18″
Over 750 V, not over 2 kV	24″
Over 2 kV, not over 15kV	36″
Over 15 kV, not over 37 kV	42″
Over 37 kV, not over 87.5 kV	48″
Over 87.5 kV, not over 121 kV	54″
Over 121 kV, not over 140 kV	--

R 408.15833. Vehicles.

Rule 5833. (1) Before a vehicle supporting an aerial ladder is moved for highway travel, the ladders shall be secured in the lower position, and the manually operated device at the base of the ladder, or other effective means, shall be used to prevent elevation or rotation of the ladder.

(2) Before a vehicle supporting an aerial lift is moved for travel, the boom shall be inspected to insure that it is properly cradled and the outriggers are in the stowed position, except as provided in subrule (3).

(3) A vehicle supporting an aerial device shall not be moved when the boom is elevated with employees in working position, unless the equipment is specifically designed for this type of operation and meets the requirements of rule 5821.

(4) Brakes shall be set and outriggers, when used, shall be positioned on pads or a solid surface.

(5) Wheel chocks shall be installed before using an aerial device on an incline.

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